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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,673

11/22/2005

Stanislav M Snaird

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EXAMINER

WU, VICKI H

ART UNIT

PAPER NUMBER

4122

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/527,673	<b>Applicant(s)</b> SNAIDR, STANISLAV M	
	<b>Examiner</b> VICKI WU	<b>Art Unit</b> 4122	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/11/2005</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

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### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1 and 11-14 is rejected under 35 U.S.C. 102(b) as being anticipated by Grossman (US Patent 4,076,031) (Grossman).

Grossman teaches a filter for a cigarette comprised of porous fibers (columns 5 and 6, claims 1-8) with said fibers that may be manufactured from zirconia (column 4 lines 4-16).

Grossman teaches the limitations of Claims 11-12 by teaching a filter for a cigarette comprised of porous fibers (claims 1-8) that can be made from zirconia (column 4 lines 4-16). Grossman teaches the limitations of Claims 13-14 by teaching a cavity defined in the filter that comprises said fibers, and said filter comprises both ceria/zirconia fibers as well as conventional fibers (Figure 4; column 3 lines 60-70).

Claims 1, 2, 5-7, 9, 15, 16, 18 and 20 are rejected under 35 U.S.C. 102(a), 35 U.S.C. 102(e) as being anticipated by Snaidr (US 2002/0062834 A1) (Snaidr).

Snaidr teaches a paper/wrapper for a tobacco rod for a cigarette, said tobacco rod being comprised of porous fibers (page 4 paragraphs 0038, 0039) that are comprised of a mixture of zirconia and ceria, with said mixture functioning as an oxygen storage metal oxide oxidation catalyst (page 4 paragraph 0053).

Snaidr teaches that the ceria / zirconia fibers in the cigarette paper are porous (page 4 paragraphs 0038, 0039, 0053) and that the adjunct (comprised of ceria) has a surface area in excess of  $20 \text{ m}^2/\text{g}$  (page 4 paragraph 0038). Snaidr also describes the cigarette paper as comprised of fibers prepared from cerium oxide as well as sidestream smoke reducing components (example on page 8: paragraphs 0078, 0081).

The amount of ceria comprises about 20-70% of the fibers (comprised of ceria / adjunct, which includes zirconia) in Snaidr (page 5 paragraph 0075), thus encompassing the ceria weight limit (50%) of the fibers in Claim 9.

Snaidr teaches that the ceria / zirconia fibers comprise part of the paper/wrapper of the cigarette, while the remainder of the paper/wrapper comprises conventional cigarette paper/wrapper fibers (page 2 paragraph 0018). Snaidr also teaches that the cigarette paper/wrapper is comprised of about 10% to about 400% by weight of the ceria / zirconia fibers (page 7 paragraph 0074); therefore at any given time, the paper/wrapper may be comprised of 35% conventional paper/wrapper fibers. Thus Snaidr teaches the limits of Claim 16 in which the paper/wrapper is comprised of up to about 65% by weight of the ceria / zirconia fibers and at least 35% by weight of conventional cigarette paper/wrapper fibers / fillers.

Snaidr teaches that the conventional paper/wrapper of the cigarette may be comprised of cellulose fibers (page 2 paragraph 0018).

Snaidr teaches that the cigarette paper/wrapper may be applied as an outer wrap over the conventional cigarette paper, which is wrapped over the tobacco rod (page 2 paragraph 0017).

Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Barnes et al. (4,938,238) (Barnes).

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Barnes teaches a conventional cigarette paper/wrapper as being comprised of a ceramic (calcium carbonate), cellulose fibers, clay, and other suitable binders and sheet reinforcement materials (column 6 lines 52-60).

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snaird in view of Katsumi Moronuki et al. (JP 2003-129399 A) (Katsumi).

Snaird teaches part of the limitations of Claims 3-4 by teaching that the cigarette fibers are made from oxygen storage metal oxide oxidation catalysts that may include zirconia and ceria. Snaird also teaches that said catalysts may be substituted with metal oxides including iron oxide, or precursors to iron oxide (page 4 paragraph 0053).

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Snaidr does not expressly disclose the surface area ranges of said fibers.

Katsumi teaches a process of manufacturing cigarette paper using goethite (alpha-FeOOH), an iron oxide.

Katsumi teaches that said goethite has a surface area in the range of 0.2-200 m<sup>2</sup>/g in this cigarette paper (paragraph 0011).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the surface-area range of the goethite of Katsumi for the zirconia in the cigarette fibers of Snaidr. The rationale to do so would have been that the goethite of Katsumi is an obvious alternative to the zirconia of Snaidr in terms of functioning as an oxygen storage metal oxide oxidation catalyst for the formation of cigarette paper fibers. Geothite itself is a type of iron-bearing oxide and may also act as a precursor to the formation of iron oxide-- a suitable metal oxide oxidation catalyst (Snaidr: page 4 paragraph [0053]).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snaidr in view of Jade (4,927,622) (Jade).

Snaidr teaches part of the limitations of Claims 8 by teaching that the cigarette has fibers of ceria / zirconia.

Snaidr does not expressly disclose that the fibers can be made from fiberizing an aqueous solution of a zirconium compound, ceria, and colloidal zirconia sol, and heating the ceria/ zirconia fibers to a temperature of less than about 1100 C.

Jade teaches that ceria / zirconia fibers can be made by the following formula: first, by preparing an aqueous solution of a zirconium based compound, then, by adding suitable phase stabilizing agents: ceria, and  $\text{HfO}_2$  (which can form colloidal zirconia sol with the zirconium compound), metal salts of these suitable phase stabilizing agents, and finally, by heating the solution up to a temperature of above about 500 C to less than about 1100 C (columns 3, 4, 5: paragraphs 2-5, 8, 24).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the formula of Jade for making the ceria / zirconia fibers of Snaidr. The rationale to do so would have been to successfully produce ceria/ zirconia fibers of desired composition and quality for the cigarettes in the current application. Jade provides a formula for making ceria / zirconia fibers that is easy to practice, does not carry disadvantages of prior conventional methods, and can be readily made with commercially available materials (column 2 lines 45-60). The formula of Jade provides ceria / zirconia fibers that are also virtually free of shot content, uniform in terms of diameter and grain size, and has reproducible properties (column 2 lines 65-70).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mays (3,292,636) (Mays) in view of Snaidr.

Mays teaches parts of the limitations of Claim 10 by teaching a cigarette in which the tobacco rod is comprised of tobacco combined with a catalyst composition, in which the catalyst composition comprises 1-15% by weight of said tobacco rod (column 1 lines 24-30; column 6 claims 1 and 4). Mays teaches that the catalyst composition may be



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comprised of metals such as iron, titanium, vanadium, tungsten, copper, silver, and manganese, as well as their oxides.

Mays does not expressly disclose the catalyst composition as comprised of ceria / zirconia fibers.

Snaidr teaches that the cigarette fibers are made from oxygen storage metal oxide oxidation catalysts that include any of the following metal oxides: iron oxide, titanium oxide, vanadium oxide, tungsten oxide, copper oxide, silver oxide, and manganese oxide. Snaidr teaches that any of said metal oxides may be substituted with zirconia or ceria (page 4 paragraph 0053).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to make the tobacco rod of Mays using the ceria / zirconia fibers of Snaidr. The rationale to do so would have been that the ceria/ zirconia fibers are an obvious alternative to any of the suitable metal oxides used as the catalyst composition of the tobacco rod described in Mays (Snaidr: page 4 paragraph [0053]).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bokelman et al. (5,152,304) (Bokelman) in view of Snaidr.

Bokelman teaches part of the limitations of Claim 17 by teaching that the conventional filler (calcium carbonate) of a conventional cigarette comprises 20%-40% by weight of the cigarette paper/wrapper (column 2 lines 20-35; 50-55).

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Bokelman does not expressly disclose the weight range of the ceria/zirconia fibers or weight range of the conventional cigarette paper/wrapper fibers that comprise the cigarette paper/wrapper.

Snaidr teaches that the cigarette paper/wrapper is comprised of about 10% to about 400% by weight of the ceria / zirconia fibers (page 7 paragraph 0074); therefore at any given time, the paper/wrapper may be comprised of about 30-40% conventional paper/wrapper fibers and/or about 30-40% by weight of ceria/zirconia fibers.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to combine the specific weight range of conventional filler disclosed in Bokelman with the specific weight range of ceria/zirconia fibers and the specific weight range of conventional paper/wrapper fibers described in Snaidr. The rationale to do so would have been that using the amount of conventional filler described in Bokelman would enhance the performance of the paper/wrapper during the use of the cigarette (column 2 lines 45-50) while simultaneously utilizing the ceria/zirconia fibers. Thus it would have been obvious to combine the filler of Bokelman with the specific amounts of ceria/ zirconia fibers and conventional paper/wrapper fibers already disclosed in Snaidr to meet the limitations of Claim 17.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICKI WU whose telephone number is (571)270-7666. The examiner can normally be reached on M-F (8:30 am-6 pm), every other Fri. off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V.W./  
Patent Examiner, GAU 4122

/Timothy J. Kugel/  
Primary Examiner, Art Unit 1796